

The people of Bahrain are extremely law abiding and there is very little crime. A force of 300 uniformed police and 200 armed watchmen is responsible for the maintenance of law and order. The Police headquarters is the Fort to the south-west of Manama, this also contains the Traffic Department, the jail for short term convicts and the police barracks. There are police stations in various districts of Manama and Muharraq and in Hedd, Budaiya, Jaw, Sitra and elsewhere in Bahrain.

Most of the Government buildings in Bahrain are constructed by the Public Works Department whose offices and yards are on the northern shore of Manama south of the Manama-Muharraq Causeway. This department is also responsible for the Manama town-water supply and the upkeep of roads and bridges. Close to the Public Works Department, on the opposite side of the Causeway, is the power house and office of the State Engineer. Electricity was first installed in Manama in 1929, later it was extended to Muharraq. The Power Station now generates about $7\frac{1}{2}$ million Kw. per annum.

In addition to these departments there are others including the Transport Section, near the Police Fort, and the Agricultural Department which runs experimental gardens in Budiaya and Manama and gives advice to Bahrain agriculturalists.

THE RULING FAMILY OF BAHRAIN

The Ruler :

HIS HIGHNESS SHAIKH SULMAN BIN HAMED AL-KHALIFAH, K.C.M.O., K.C.I.E.

Sons of the Ruler :

HIS EXCELLENCY SHAIKH ISA BIN SULMAN AL-KHALIFAH.

HIS EXCELLENCY SHAIKH KHALIFAH BIN SULMAN AL-KHALIFAH.

HIS EXCELLENCY SHAIKH MUHAMMAD BIN SULMAN AL-KHALIFAH.

Uncles of the Ruler :

HIS EXCELLENCY SHAIKH ABDULLA BIN ISA AL-KHALIFAH, C.I.E.

HIS EXCELLENCY SHAIKH MUHAMMAD BIN ISA AL-KHALIFAH, C.B.E.

Brothers of the Ruler :

SHAIKH MUBARAK BIN HAMED AL-KHALIFAH.

SHAIKH ABDULLA BIN HAMED AL-KHALIFAH.

SHAIKH ALI BIN HAMED AL-KHALIFAH.

SHAIKH IBRAHIM BIN HAMED AL-KHALIFAH.

SHAIKH KHALIFAH BIN HAMED AL-KHALIFAH.

SHAIKH DAIJ BIN HAMED AL-KHALIFAH.

SHAIKH AHMED BIN HAMED AL-KHALIFAH.

Sons of Shaikh Abdulla bin Isa :

SHAIKH RASHID BIN ABDULLA AL-KHALIFAH.

SHAIKH ALI BIN ABDULLA AL-KHALIFAH.

SHAIKH HAMED BIN ABDULLA AL-KHALIFAH.

517 and coffee-shops. This activity continues until about eleven o'clock especially in the summer when it is pleasanter to be out in the open air than indoors.

● 377 Manama is supplied with electric light from the Government Power House, situated on the point at the north-east end of Manama. The town water supply, also a Government concern, comes from artesian wells in what used to be the Municipal-Garden from where it is pumped into large tanks high above Manama and from there distributed by mains to all parts of the town and to numerous drinking fountains and public baths. This water system, which was installed by Holloway Bros., was completed in 1949, before this the water came from private and public artesian wells and was distributed by water carriers.

QASARI

491 It is logical in describing Bahrain to leave Manama by the main road, Awal Road, but a more interesting drive can be taken by following the 2nd class road which branches off from Awal Road beyond the Mental Hospital. After passing through a number of villages of comparatively little interest the road comes to a shaded lane bordered on one side by a lake. This is Ain al-Qasari, whose pool, although more extensive than that at Adari, is shallow and therefore unsuitable for swimming. Here there is a garden and a pleasant little house overlooking the pool, admittance to which is free, which is much frequented by picnickers. In the pool there are fish, some of which are as much as eighteen inches in length, as well as turtles. These are so accustomed to visitors that when people walk along the edge of the water or sit in the house, they swim lazily to the surface, waiting to be thrown pieces of bread or food. In a country consisting mostly of desert, and where a small and dirty pool usually constitutes the local water supply, the attractive appearance of Ain al-Qasari, particularly at sunset, is very agreeable.

276 There are in fact two springs called Qasari, the second, situated on Awal Road, is better known by the name of the "Dhobis Pool" on account of the large numbers of Indian washermen who mercilessly beat the dirty clothes on slabs of rock, and when they have finished hang them out to dry in long lines by the side of the road. It is a not unusual sight to round a corner of the road and to see before one lines of clothes, billowing in the breeze like wind-socks, and the frantic activity of the dhobis standing in the water in an odd array of clothing attempting to finish their task and dry the laundry before the sun sets.

BILAD AL-QADIM

361 A short way beyond Ain al-Qasari is Bilad al-Qadim, literally "The Old Town," formerly the capital of Bahrain, which lies between the Suq al-Khamis Mosque, whose twin minarets are a landmark for navigators, and the Khor Mukhtar inlet on the east coast. Bilad al-Qadim can also be approached from Awal Road opposite the Suq

visa either directly to the Bahrain Government or to the nearest British Consulate which will, after reference to the Bahrain Government, accept or reject the application on the latter's behalf. Passengers arriving in Bahrain without visas are likely to find themselves on the next plane outward bound. 486

Travellers from Bahrain who require visas for other countries must apply for them to H.B.M.'s Political Agency. In some cases the Agency is able to issue these visas on behalf of the foreign countries, but in the case of others it will be found necessary to apply for visas directly to the nearest consulate of the country concerned. H.B.M.'s Political Agency are in a position to inform prospective travellers about the latest regulations on this subject.

TAXES

There is no income tax in Bahrain, but for owners of houses and other premises within the Municipal areas of Manama, Muharraq, Hedd and Rifaa there is a small Municipal tax. 651

WATER AND ELECTRICITY

Within the Municipal area of Manama both water and electricity is provided by the State. 312

Within the Municipal area of Muharraq electricity only is provided by the State. 377 • 655

Rates for these amenities are as follows :—

Electricity.

First 50 units per month, 4 annas per unit.
Next 200 units per month, 3 annas per unit.
Over 250 units per month, 2 annas per unit.
Meter rent 8 annas per month.
Minimum charge Rs.1 or 4 units per month.

Water.

1,000 gallons Rs.1 As.14.
Meter rent, 8 annas per month.
Minimum charge, Rs.1 As.14 per month.

CURRENCY

Local currency in use in Bahrain at the time of writing is the Indian Rupee, worth, at the current rate of exchange, 1/6d. 436

Coinage is as follows :—

12 pice make 1 anna.
4 pice make 1 anna.
16 annas make 1 rupee.

The following coins and notes are in circulation :—

1 pice (1/12 anna)	..	copper	1 rupee	..	nickel and note
1 pie (1/4 anna)	..	copper	2 rupees	..	.. note
1 anna	..	nickel and brass	5 rupees	..	.. note
2 annas	..	nickel and brass	10 rupees	..	.. note
4 annas	..	.. nickel	100 rupees	..	.. note
8 annas	..	.. nickel			

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Over the past three years the Government has subsidised the price of meat and dates to the extent of approximately £70,000. - sugar costing from £6 to £7 10s. has been sold to importers of livestock and dates at £3 15s. per bag.

That this policy has been wise is shown in the figures of imports of livestock during Ramadhan and Shawal 1372, as under:

Ramadhan 1372 :	Cattle ..	1019 head
	Sheep and Goats ..	13327 ..
Shawal, 1372	Cattle ..	526 ..
	Sheep and Goats ..	10914 ..

The retail prices to the public of beef, mutton, and goat meat in Bahrain are very much cheaper, by half at least, than in the neighbouring countries of Saudi Arabia and Kuwait.

Fish supplies were more plentiful than in the previous year, with prices again well below neighbouring states:

Imports of consumer goods increased during the year, and there are signs of over-stocking of certain commodities, particularly piece goods, flour, tea and motor cars.

During the year it was noticed there was a downward trend in the price of certain commodities such as timber, iron bars, windows, joists and muraba wood.

Large supplies of fresh fruits arrived in Bahrain from Lebanon, Persia, Australia, America and India, during the year with prices considerably lower than in the previous year.

Although the Government ended rationing during the year, it still maintains a price control on such essential commodities as meat, fish, rice, sugar, flour, wheat, tea and coffee.

STATE ENGINEER'S DEPARTMENT

(Report by Mr. D. Brammer, Assoc.I.E.E., M.A.S.E.E., State Engineer)

The Electricity Undertaking

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The Power Station. A new 750 K.W. Generating Set was completed and put into commission on 10th Ramadhan, increasing the total installed capacity of the station to 3,750 K.W.

Units generated amounted to 10,58,560, an increase of 28 per cent. on the previous year and the electricity supply to the public was maintained without any major interruption.

A notable achievement was the reduction in transmission losses from 13.25 per cent. to 6.26 per cent., a saving of some 360,000 units.

Mains Department. The four skilled linesmen who were recruited in India last year were discharged in Dhul Haj. 1372. Their work had become most unsatisfactory. The work of renewal and maintenance proceeded satisfactorily but the rate of connection of new consumers is still far too low and further efforts are now being made to recruit skilled staff in order to speed up this work.

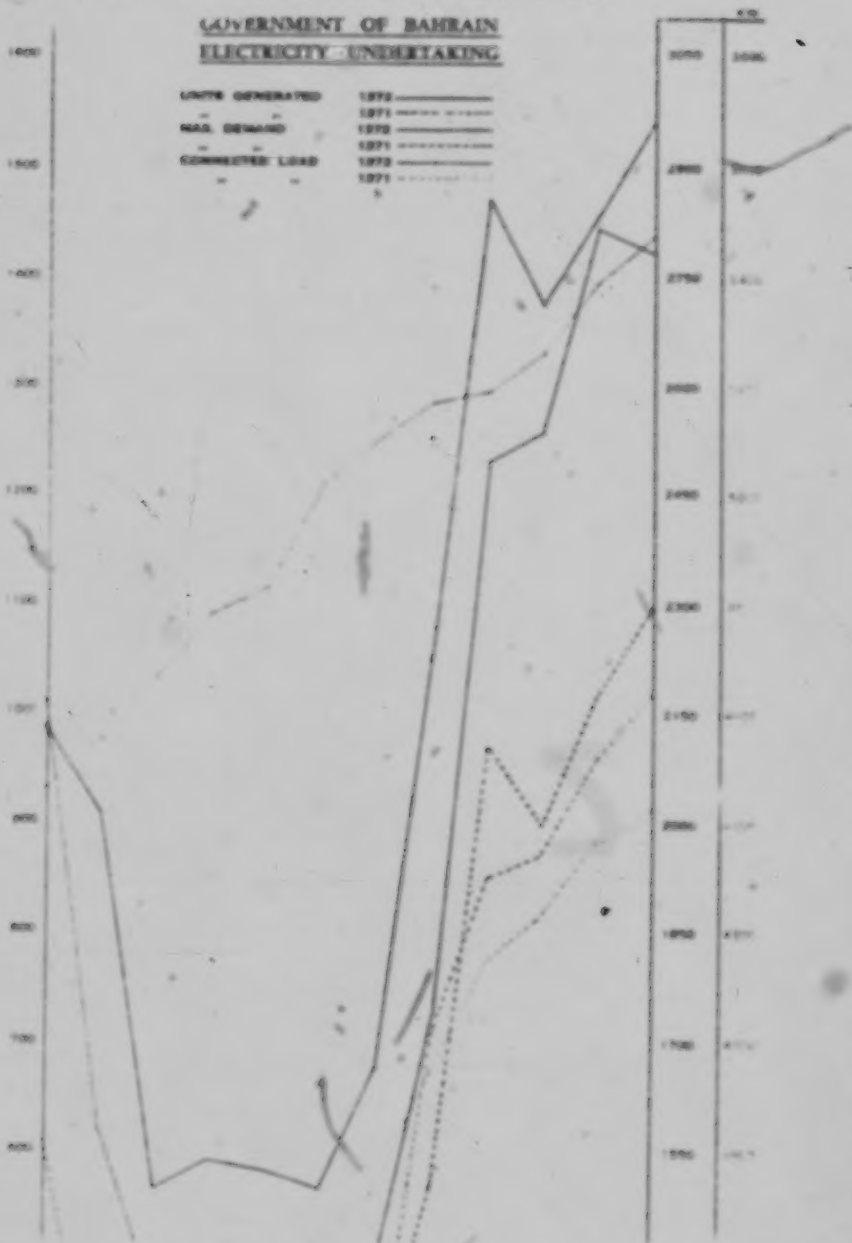
A new underground H.T. cable was laid from the Power Station to "C" Sub-station and the H.T. overhead line between Muharraq Town and the Royal Air Force Station was re-erected and its capacity doubled.

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The H.T. underground cable around Muharraq Town was completed giving an extra supply of 320 k.w. to districts which had never before had an electricity supply, and some two miles of L.T. distribution were erected in the town, together with street lights.

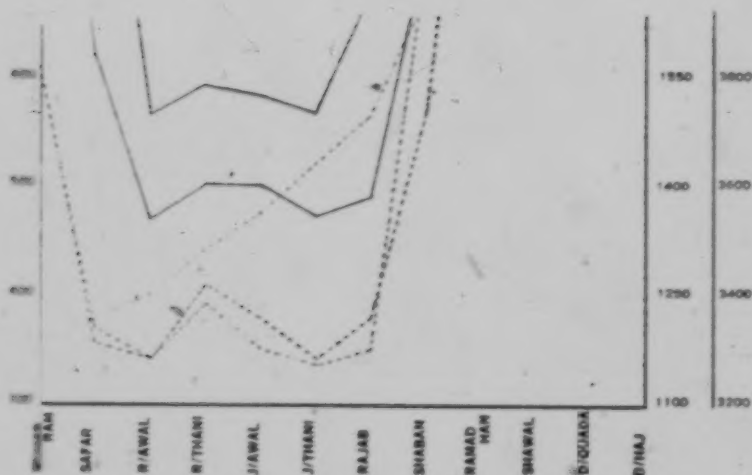
**GOVERNMENT OF BAHRAIN
ELECTRICITY UNDERTAKING**

UNITS GENERATED	1970	-----
"	1971	-----
MAX. DEMAND	1970	-----
"	1971	-----
CONNECTED LOAD	1970	-----
"	1971	-----



[facing page 62 Top]

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[facing page 62 Bottom]

● 377

In Manama, Feeder Pillars were erected in various positions about the town and larger transformers installed in many sub-stations to deal with growing loads while larger sized overhead lines were erected in the Al Hadrami Section, Palace Road, Shaikh Daij Road and Shaikh Road. New L.T. Distribution lines were erected in the Quarantine Area and underground cables were laid along Prior Road, Sea Road and Jufair Road. The total capacity of the sub-stations is now 4225 k.v.a. ; 170 new street lamps were erected in various districts and 889 new consumers were connected bringing the total number of consumers to 4514.

The total additional load connected was 1051 k.w.

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Meter and Consumers Department. The growth and importance of this Department necessitated an extension to the present premises. The new premises were occupied in Shawal and they consist of two floors with the following accommodation.

(1) Meter Testing and Repairing Room ; (2) Stores for Meters and Meter spares. (3) Office for Installations Staff ; (4) Office for Meter Readers.

In Shawal the meter readers were transferred from the Accounts Department and their supervision and the checking of their work is now the responsibility of the Meter Department. This move should ultimately improve the efficiency of meter reading and accounting.

During the year, 1,318 meters were repaired and tested, 1,035 were issued and 57 removed from various premises due to reconstruction, etc. ; 31 consumers complained of excessive electricity consumption and their meters were tested—only ten were found to be inaccurate. Two cases of theft of electrical energy were reported to the Police. 1,385 applications for new electricity supplies were received and at the year-end some 2,266 were still outstanding.

Wiring, Sales and Services Department. Electrical Installation work for the following premises was carried out during the year :—

- Government Flats, No. 2 Block, Awal Road, Manama.
- Government Flats, Sea Road, Muharraq.
- Technical School, Manama (additional).
- Workers' Houses, Manama.
- Tifa Station, Manama.
- Dispensary, Muharraq.
- Flats over Technical School, Manama.
- Government Hospital, Manama (Residence), (additional).
- Kindergarten School, Muharraq.
- Offices over Government Shops, Barret Road, Manama.
- Police Family Quarters, Manama.
- Government Transport Petrol Filling Station.
- Adviserate, Manama (additional).
- Public Works Department, Manama (additional).
- Power House, Manama (additional).
- H.H. Palace, Quadabiya (additional).
- Food Office, Customs, Manama (additional).
- New Clerks' Office, Customs, Manama (additional).
- Private Male Wards (First Floor) Government Hospital, Manama.
- State Engineer's Office and Workshop, Extension, Manama (additional).
- Pathological Laboratory, Government Hospital, Manama (additional).
- Landing Clerk's Office, Customs, Manama (additional).
- Government Hospital, Manama (additional).
- Tifa Station, Manama (additional).
- A. Kasam's Residence, Government Hospital, Manama (additional).
- Dilmun House, Sea Road, Manama (additional).
- Government Coffee Shop, Awal Road, Manama (additional).
- Shaikh Ebrahim's House, Quadabiya (additional).
- Assistant Electrical Engineer's Residence, Belgrave Road, Manama (additional).
- Adviserate Office, Manama (additional).
- Government Workshop, Manama (additional).
- Police Fort Office, Manama (additional).
- Police Station, Manama (additional).
- H.H. New Palace, Quadabiya.
- Government Flats, Quadabiya.
- Customs Sheds, Manama.

7[AD. 1952-53 -- Analyst]

377 Six Wiring Contractors' Licences were issued to local merchants bringing the total to 31. Licences were also issued to 12 additional wiremen who had been successful in passing the Department's tests.

655 **Future Prospects.** When the 750 k.w. Generating Set, now being installed, is put into commission the present Power Station will have reached its full capacity and no further machines will be installed there.

The new scheme, whereby natural gas will be used to generate electric power, is scheduled to commence operating from a new Power Station, situated near the R.N. Wireless Station, Jufair, during the summer of 1973. Initially this station will contain four 1,000 k.w. Gas Engine Generating Sets. The first two of these will operate as Diesel Generating Sets for some twelve months until the natural gas is available from the oil-field.

The Contracting Engineers for this scheme are Messrs. D. and C. and William Press who, at the end of the year had commenced preparing the site for the new Power Station. The project includes for the distribution of ample supplies of electricity to all parts of Bahrain and it is expected that the initial stages will be completed in some two and a half years time.

The distribution of domestic gas is also being considered as a long-term policy.

655 **Workshops Department.** This Department continued to carry out new work and repairs for all Departments of the Government and many private jobs were undertaken for local firms.

651 Work for the Government produced a revenue of Rs. 22,310, while private jobs produced Rs. 15,822, showing an overall loss of Rs. 2,218.

655 **Transport Department.** There was an increase of 25 per cent. over the previous year of the total number of vehicles, mechanical plant, etc., operated by Government Departments and to cope with this increase the Transport Department continued to expand.

489 A Petrol Filling Station was constructed by Public Works Department and opened on the 8th Shawal, 1372, for the issue of Petrol, Oil, Air and Water. All Government vehicles now draw from this point.

495 Eight lock-up garages for the storage of spare vehicles were constructed and a heavy duty vehicle lift, capable of lifting vehicles weighing up to eight tons, was installed in the main shed.

The total number of vehicles on charge at the end of the year is :

(a) Load-carrying vehicles (Trucks)	31
(b) Buses, Station Wagons, etc.	13
(c) Pick-ups	15
(d) Saloon Cars	25
(e) Land Rovers	19
(f) Motor Cycles	23
	126

The total number of Launches, Mechanical Plant, Machinery, etc., on charge at end of the year

Vehicles written off as being beyond economical repair

The total number of new vehicles ordered was

The total number of new vehicles received was

The total number of service operations carried out on vehicles during the year was

The total number of repair jobs, both major and minor, carried out on vehicles, machinery, etc., was

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33
38
3024
5887

GOVERNMENT OF BAHRAIN—ELECTRICITY SUPPLY DEPARTMENT

Statement of Energy Sold, etc., for the Year Ending 30th Dibaaja, 1372

Total Units Generated	UNITS SOLD			Units used at Power Station	Units accounted for	Units lost in Transmission and Transformation	Kilowatts for Public Lighting	Total Kilowatts connected	Total Kilowatts Power Station capacity	Total Kilowatts Maximum Demand on Power Station	Total No. of Street Lamps	Total No. of Consumers
	By Meter for all purposes	For Public Lighting	Total									
10,185,590	9,503,927	146,411	9,650,338	298,608	9,948,946	636,814	55	5,497	3,750	2,985	730	4,714

MAINS AND TRANSFORMER LOSSES = 6.26 PER CENT.

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BAHRAIN ELECTRICAL DEPARTMENT
BALANCE SHEET AS ON 1st JANUARY, 1954

Liabilities		Assets	
CAPITAL ACCOUNTS:		PLANT AND MACHINERY:	
Bahrain Government	60,50,000 0 0	Generation Section:	
Sundry Creditors:		Power House and Buildings	7,96,609 0 1
Bahrain Government	32,077 0 9	Power House Equipment	75,472 1 7
Bahrain Petroleum Co.	47,437 8 0	Oil Tank	3,180 14 0
	79,514 8 9	Oil Filter	7,683 2 2
Reserves:		Water Distillation Plant	94,854 13 8
Depreciation Reserve	7,61,090 7 6	Cooling Tower Equipment	60,709 9 1
Operating Reserve	4,89,748 11 11	Engine Set No. 4	93,082 2 1
Reserve for Bad Debts	12,774 0 0	Engine Set No. 5	1,47,167 4 3
	12,61,613 3 5	Engine Set No. 6	1,46,307 0 1
Contingencies Etc.	1,01,432 10 0	Engine Sets Nos. 7 and 8	3,61,569 6 9
		Engine Set No. 9	3,17,731 4 2
		Engine Set No. 10	2,49,770 13 9
		Engine Sets Nos. 11 and 12	6,60,086 1 0
			30,14,223 8 8
		Distribution Section:	
		Feeders, Sub-Stations, Switchgear	
		and Distribution Lines	21,05,326 3 6
		Meters	2,73,723 13 3
			23,79,050 0 9
		MOTOR VEHICLES	66,250 0 0
			34,59,523 9 5
		GENERAL STOCK:	
		Stock on hand	14,17,720 6 8
		Stock in transit	1,24,199 5 6
			15,41,919 12 2
		SUNDRY DEBITORS:	
		Energy Debtors	1,99,111 4 0
		Service Debtors	6,243 0 0
		Wiring Debtors	50,129 6 0
			2,55,483 10 0
		CASH IN HAND:	
		Imprest Account	8,000 0 0
		Eastern Bank (Current Account)	1,28,200 12 7
		Eastern Bank (Con. Dep.)	1,01,432 10 0
			2,37,633 6 7
			Rs. 74,94,560 6 2
			Rs. 74,94,560 6 2

4: Bahrain C-5 (no date) 1953 M22 Bahrain M22

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BAHRAIN ELECTRICAL DEPARTMENT
SUB-DIVIDED RECAPITULATED PROFIT-AND LOSS ACCOUNT FOR 1972 AND PERIOD ENDED 31st DECEMBER, 1971

ELECTRICAL SECTION		Expenditure	Receipts
<i>Generation:</i>			
Materials, Maintenance and Repairs	5,17,175	0 11	
Establishment Costs	2,36,764	14 2	
Insurance	23,085	12 0	
Depreciation—Power House and Buildings	19,513	0 0	
Power House Equipment	3,774	0 0	
Oil Tanks	80	0 0	
Oil Filters	480	0 0	
Water Distillation Plant	5,528	0 0	
Cooling Tower and Equipment	6,070	0 0	
Engine Set No. 4	7,757	0 0	
Engine Set No. 5	12,264	0 0	
Engine Set No. 6	9,144	0 0	
Engine Sets Nos. 7 and 8	22,598	0 0	
Engine Set No. 9	19,858	0 0	
Engine Set No. 10	25,415	0 0	
Engine Sets Nos. 11 and 12	10,114	0 0	
<i>Distribution</i>		4,28,229	3 1
Materials, Maintenance and Repairs	1,08,812	6 10	
Establishment Costs	2,08,681	11 1	
Depreciation—Feeders, Sub-Stations, Switchgears and Lines	1,05,266	0 0	
<i>Meters</i>		4,22,782	1 11
Maintenance and Repairs	6,012	2 0	
Establishment Costs	43,332	9 0	
Depreciation	13,686	0 0	
		61,030	11 0
NET PROFIT		3,30,260	6 0
		Rs. 17,44,322	6 0
WIRING AND MISCELLANEOUS JOBS			
Materials	3,37,215	0 6	
Establishment Costs	60,879	5 9	
		3,98,094	6 3
NET PROFIT		13,236	13 0
		Rs. 4,11,298	4 0
RECAPITULATION			
NET PROFIT—Added to Operating Reserve		3,43,497	3 9
		Rs. 3,43,497	3 9
Revenue			
Sales of energy and rental of Meters			17,44,322 6 0
			Rs. 17,44,322 6 0
Revenue			
Wiring, Sundry Sales and Sundry Jobs			3,38,225 8 0
Service			79,085 12 0
			Rs. 4,17,298 4 0
NET PROFIT—Electrical Section			3,30,260 6 0
NET PROFIT—Wiring Section			13,236 13 0
			Rs. 3,43,497 3 9

[Signature] 1973 NET PROFIT 17,44,322 6 0

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which caused considerable resentment among the Shias, although at that time the proportion of Shias at the Government schools was much lower than it is now. If more care had been given to the selection of the candidates, this experiment would have been more successful. The boys remained at Beyrout for two years; a longer course would have been more useful to them but, mainly owing to financial reasons, the Government decided not to extend their time.

Some years have now passed since these boys returned to Bahrain, and the result of their education can now be seen. In my opinion, it was successful in the case of three of the boys, moderately successful in the case of three, and a complete failure in the case of one boy. If the boys had been younger when they left Bahrain, I believe that the experiment would have been a complete success.

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Education of the Ruling Family.

In 1925, Shaikh Hamad allowed two of his sons to go as boarders to the American Mission school in Basrah. They stayed there for one term and did not return to school.

In 1930 a tutor was obtained from India to teach Shaikh Hamad's younger sons. He was well recommended and highly qualified and had previously been in charge of an Indian princeling. Although the tutor worked hard under difficult conditions and did his best to teach his pupils, it was soon apparent that his employment was a waste of his time and of the Government's money. The tutor lived in Shaikh Hamad's house, but the boys were disinclined to work and so did nothing. It was impossible to bring any compulsion on them to do their lessons. The experiment was a complete failure and, after completing one year, the tutor's agreement was not renewed.

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Future Developments of Education.

There is danger in the creation of a class of semi-educated young men in Bahrain who, because they have a little learning, regard themselves as too superior to do manual work and who will become too many to find employment of a clerical nature. The people, however, especially the Shias, are urgent in their demands for increased education, and more schools, and in reply to this the Government intends to open more small country schools in the villages. A knowledge of reading, writing, and simple arithmetic is all that is needed by boys from the villages, most of whom will eventually become divers, cultivators, and fishermen. In these occupations, school education is unnecessary, though for divers and fishermen a knowledge of figures is some assurance against being swindled.

Boys who attend the town schools in Manamah and Muharrag are mostly sons of shopkeepers, merchants, and pearl traders, and many of them enter their fathers' shops and offices, where they benefit from a knowledge of accounts, book-keeping, and the more advanced education which is given at the two big schools.

If the newly started technical classes are successful, the Government will develop this experiment and, if possible, introduce more subjects which will provide lucrative employment for trained boys when they leave school. It should be possible for boys who have learned carpentry, etc., at school to secure employment with the Bahrain Petroleum Company in place of some of the many foreign artisans who are now employed by the Company.

ELECTRIC DEPARTMENT

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Original Installation.

The possibility of introducing electricity in Manamah was first considered over ten years ago, and for some time funds were set aside for the purpose; it was not, however, till 1928 that any action was taken by the Government.

That year the services of Mr. Severson, electrical inspector in Sind, were obtained in an advisory capacity and a scheme was prepared by him in Bahrain, together with plans for the layout and a rough specification. Bahrain was then in a prosperous condition, and it was estimated that the initial load would be not less than 2,000 lamps and 200 fans. The people in Manamah were anxious to form a public company, but after consideration this suggestion was dropped, and eventually it was decided that the scheme was to be undertaken by the Government and the Manamah Municipality.

A number of well-known firms were invited to tender, but all seemed to consider Bahrain too far off the beaten track, except Callender's Cable and Construction Company who, on their own initiative, sent a representative to Bahrain to examine the prospect. In the summer of 1928, I and Mr. Stevenson discussed the scheme with several electrical engineering companies in London, but none of them were interested. Finally, Callenders' submitted a complete tender, which was accepted by the Government in the spring of 1929, the tender was for £20,000/- and included the power-house, plant, and the installation in Manamah town. In September, 1929, Mr. Jordan, Callenders' resident engineer, arrived, and the power-house was opened and the supply commenced on 11th May.

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Unfortunately, during the time between the decision to install electricity and the completion of the work, the prosperity of Bahrain declined. An abnormally bad year on the pearl market resulted in general trade depression and a falling off in revenue. Only 1,200 lights and 200 fans were ordered or installed, and this included street lighting and lights and fans in Government and Municipal buildings.

Muharraq Extension.

The following year it was decided to extend the electric power to Muharraq. The people of Muharraq protested, with some justification, that they should be allowed to share in the benefit of the scheme which had been paid for out of public funds, to which Muharraq, almost as large a town as Manamah, had contributed a large proportion. Callenders' submitted a tender which was accepted by the Government after obtaining the advice of the Chief Engineer, Iraq. The final amount was for Rs 55,000/-. The extension consisted of a high tension rubber pole line (3,300 volts) along the route of the causeway which was being built between Manamah and Muharraq, with a submarine cable across the deep water channel.

Share of Municipalities.

The Manamah Municipality had paid 20% of the original capital expenditure, and when Muharraq was added to the scheme the Muharraq Municipality contributed a similar share: 20% of the original expenditure and also 20% of the Muharraq extension, to which Manamah also contributed its share of 20%. The cost of the completed scheme was divided between the Government and the two Municipalities, the Government having 60% interest and the two Municipalities each 20%.

Progress.

At the end of 1929 (May 1931) the total number of houses wired was 222; 1,497 lamps and 268 fans had been installed. There was a total loss during the year of Rs 27,000/-, but out of this sum Rs 22,000/- represented depreciation, which had perhaps been assessed at an unnecessarily high rate. During the following year there was a slight increase in consumers, but the result of the Muharraq extension was disappointing; 280 points were connected during the year. Electric power was used when an ice plant, which had been acquired by the Manamah Municipality, was installed in the power-house; a reduced rate was charged for power used in the plant as it was regarded as a public utility concern.

State Engineer.

In October 1931, Mr. W. B. Suttle, of Callenders' Cable and Construction Company, who had worked for some months in Bahrain as the Company's executive engineer, was appointed as State Engineer to the Bahrain Government. From that date Callenders' ceased to work the electric supply in Bahrain, and the Government also took over all wiring and installation work which has produced a small profit, although the price was kept low in order to encourage consumers. The loss in 1930 (1931-32) was Rs 32,000/-, of which Rs 27,000/- was depreciation. The expenditure during the year included several non-recurrent items such as passages for Callenders' engineer, rent of house, etc. The actual loss on running was about Rs 3,000/-.

Progress.

In 1931 (1932-33), though the revenue increased by approximately Rs 5,000/-, there was a loss on running of Rs 5,800/-, not including depreciation which amounted to Rs 20,000/-. A small showroom was opened at the office of the Electric Department for the sale of electrical apparatus. Although the number of lights increased

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considerably, there was not a corresponding increase in revenue owing to the use of cheap low-power Japanese lamps which were bought by the public in place of the more powerful lights which had originally been installed.

In 1352 (1933-34) there was a further increase in revenue: 415 more points were connected and power was used for refrigerators, water-pumps, etc. The Electric Department acquired the sole agency for International General Electric Company's refrigerators which, after experiments with other makes, were found to be the most satisfactory. The increase continued through 1353 (1934-35); revenue from sale of energy amounted to Rs 6,000/- more than during the previous year, but, unfortunately, owing to an experiment which was made by a temporary engineer, there was a loss of over Rs 5,000/- on wiring. A reduction in the price per point resulted in wiring being carried out by the department at an actual loss, and the amount involved was considerable, as the department had undertaken a large amount of wiring work for the Bahrain Petroleum Company in addition to the normal work in Manamah and Muharraq. A large quantity of material was ordered at the same time in expectation of wiring orders which did not materialise.

First Profitable Year.

In 1354 (1935-36) the Electric Department made a profit of Rs 4,800/- after covering all charges including depreciation. Sixty new premises were wired, 302 lighting points and 33 fans were installed, and the load increased by 27 kilowatts. The department carried out all the wiring work for the naval base at Jufair and also put in a land telegraph line from the wireless office to the terminus of the subterranean cable on the coast west of Manamah.

In 1355 (1936-37), the seventh year of the undertaking, the net profit was Rs 16,757/-, the load increased by 58 kilowatts, and 91 new premises were wired. A new one-ton ice plant was installed, the existing supply being found insufficient for local requirements, and indications appeared that the public were beginning to use electric power commercially, for example, in carpentry, etc. A three-phase line and underground cable was run from Naim to the new direction-finding station installed by Cable & Wireless Limited, and underground mains replaced the overhead lines in the customs square. During the winter months the generating sets were run continuously, for the first time, in order to encourage the use of power appliances.

Future Prospects.

It can be reasonably assumed that during the next two or three years the load will increase. There are still a large number of houses which are not provided with electric light, and all new houses, especially those which are built for letting, are nowadays fitted with electric light. During the last year the two engines have frequently been running at the same time in order to cope with peak loads. This is undesirable and dangerous. It is now proposed to instal a third engine consisting of one 300 BHP Mirreless set which will obviate any possibility of a breakdown and which will provide for future expansion.

A reduction in the rate charged for heating appliances was made during 1355 (1936-37), but it has not yet been possible to reduce the cost of the unit for lighting or cost of power for other purposes. It may be possible to effect a reduction during the year 1357 (1938-39).

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Telephone System.

In 1351 (1932-33) a public telephone was opened in Manamah, and by the end of the first year twelve lines had been connected and two were in course of erection. The telephone exchange was installed in a room above the Police Station, which was both a safe and central position. Two young men from the schools were trained by the State Engineer as operators. The yearly rent for a telephone, with an unlimited number of calls, was Rs 150/-, which was reduced after two years to Rs 125/-, as it was found possible to reduce the rent and still allow a small profit from the undertaking.

In 1353 (1934-35) an extension of the telephone system was run from the exchange to the aerodrome in Muharraq in conjunction with the Imperial Airways Company, which paid for this additional line. In 1354 (1935-36) the exchange was connected to the Bahrain Petroleum Company Limited telephone system by a trunk line, and another line was erected to the naval base at Jufair. In 1355 (1936-37) a new exchange of 25 lines was installed in Manamah, and a day and night service was instituted. At the end of 1355 (1936-37) it was decided to connect the